

REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 5 and 8 are being amended.

A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier.

Claims 1-2, 4-5, 7-9, and 13-17 remain pending in this application.

Allowable subject matter

Applicants appreciate the indication that claims 5 and 8 contain allowable subject matter. Applicants have amended claims 5 and 8 to be independent, and thus allowable, form.

Rejections under 35 U.S.C. §§ 102 and 103

Claims 1, 2, 9 and 13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,805,061 to De Missimy et al. (hereafter “De Missimy”). Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over De Missimy in view of U.S. Patent No. 5,302,942 to Blau (hereafter “Blau”). Claims 7 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over De Missimy. Claims 14-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over De Missimy in view of U.S. Patent No. 6,175,106 to Buitkamp et al. (hereafter “Buitkamp”). Applicants respectfully traverse these rejections for at least the following reasons.

Independent claim 1 includes a light emitting unit array and light receiving unit array each comprising a group of single-beam optical modules, wherein each single-beam optical module comprises a single light emitting unit or a single light receiving unit comprising a lens, an optical element and a holder integrally incorporated with the lens and optical element, and wherein the holder is separated from holders of other single-beam optical modules.

Applicants submit that neither De Missimy, nor the remaining references cited in the rejections, suggest the structure of the light curtain generating device as recited in claim 1, or the attendant advantages of such a structure.

First, De Missimy fails to disclose the structure of a light emitting unit array and light receiving unit array each comprising a group of single-beam optical modules as recited in claim 1. The Office Action appears to read the light sources 8 and the photodetectors 18 on the single-beam optical modules for the light emitting unit array and light receiving unit array, respectively, as recited in claim 1. De Missimy, however, fails to disclose that light sources 8 and photodetectors 18 are in modular units. Instead De Missimy discloses that each of the assemblies 6A, 6B, 6C or 16A, 16B, 16C is formed as an integrated unit incorporating multiple light sources 8, or photodetectors 18, respectively. In this regard, De Missimy is similar to the prior art devices discussed in the present specification (page 2) which employ multiple beam modules. If the Examiner continues to maintain that light sources 8 and photodetectors 18 are modular, applicants respectfully request the Examiner to specifically point out where in De Missimy this feature is disclosed.

Second, De Missimy fails to disclose the structure of the separated holders as recited in claim 1. De Missimy discloses lens holder panels (12A, 12B, 12C, 22A, 22B, 22C) which each hold multiple lens, where each lens corresponds to one light source or photodetector. Thus, De Missimy does not disclose the separated holders as recited in claim 1.

Moreover, the structure of the device as recited in claim 1 provides attendant advantages not recognized by De Missimy. One advantage of the structure recited in claim 1, is that a light curtain generating device can be selectively fabricated so as to be adjustable with respect to the length of the light emitting and receiving pillar assemblies, and the number and pitch of the light beams (see specification, paragraph 12). The structure recited in claim 1 is an improvement over prior art structures which do not employ single beam modules, and thus do not have the same flexibility to select the number of light beams (see specification, page 2). The De Missimy device lacking the single-beam optical modules with their separated holders of claim 1, fails to suggest the attendant advantages of a light curtain generating device which can be selectively fabricated so as to be adjustable with respect to the

length of the light emitting and receiving pillar assemblies, and the number and pitch of the light beams. The possibility of selective fabrication provides advantages such as energy saving. Moreover, the position of a module may be focused at a particular point, or to accommodate unusual structural designs and smaller sized openings or access points.

Applicants submit that the attendant advantages of the structure of the device of claim 1 must be considered in determining obviousness, even if those attendant advantages are directed to ease in manufacture of the device of claim 1. The Examiner states in the final Office Action:

[T]he examiner holds that these advantages [associated with the fabrication of the claimed invention] are not present in the form of functional limitations that would hold patentable weight in the claim language and differentiate applicant's invention from the prior art, but rather only refer to issues of manufacturing the device.

The advantages in manufacturing the claimed device may not properly be ignored, because these advantages necessarily flow from the structure of the claimed device.

Further, the attendant advantages of the structure of claim 1 are not directed to only ease in manufacture. The flexibility in selecting the number of light beams provides advantages in the device as a finished product. Because of this flexibility a product line of light curtain generating products may be readily offered with a varying number of light beams, for example, where the number of light beams differs by only one between products. Thus the advantages of the present invention as recited in claim 1 are not merely associated with manufacturing processes per se for making the device, but the advantages extend to the product line of the finished products. Both product manufacturers and end users would benefit from this advantage because of the capability of ordering a light curtain generating device having an arbitrary number of light axes depending on the needs of the user.

Applicants provide Appendix A, a product catalogue, as evidence of the advantages of specific implementations of the present invention. While the present invention is not limited to the specific implementations shown in Appendix A, the products shown in the product

catalogue do include the single-beam optical modules and holder as recited in claim 1. On page 4 of the catalogue it can be seen that standard products are offered where the products have from 13 up to 120 light axes (see "Select the Perfect Length" section). These products are standard products and do not require a special order.

By contrast, on the other hand, according to De Missimy, assembly 6A, 6B and 6C (16A, 16B, 16C) comprise a plurality of light sources (photo-detectors). Therefore, in order to offer a product lineup having a varying light axis, assemblies comprising a varying number of light sources (photo-detectors) must be produced. Therefore, the ability to offer the variety in product lineup as presented in the attached catalogue, is not realistic using the structure of De Missimy due to incurring costs of providing such lineup.

Neither Blau or Buitkamp cure the deficiencies of De Missimy. Blau was cited for alleged teaching of plastic supports, and Buitkamp for allegedly teaching mounting positions, but fail to disclose a device which includes a light emitting unit array and light receiving unit array each comprising a group of single-beam optical modules, wherein each single-beam optical module comprises a single light emitting unit or a single light receiving unit comprising a lens, an optical element and a holder integrally incorporated with the lens and optical element, and wherein the holder is separated from holders of other single-beam optical modules.

The dependent claims, ultimately depend from claim 1 and are patentable for at least the same reasons, discussed above, as well as for patentable features recited in those claims. For example, claims 7 and 9 are further patentable for at least the additional reasons cited in the amendment filed February 20, 2003.

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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